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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WEN-HSIAO PENG
and YEN-KUANG CHEN

Appeal 2008-1126
Application 09/758,647¹
Technology Center 2600

Decided: September 22, 2008

Before MAHSHID D. SAADAT, SCOTT R. BOALICK,
and JOHN A. JEFFERY, *Administrative Patent Judges*.

BOALICK, *Administrative Patent Judge*.

¹ Application filed January 10, 2001. The real party in interest is Intel Corporation.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1-24.² We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

Appellants' invention relates to an encoding process for video data.
(Spec., Abstract.)

Claim 1 is exemplary:

1. A method comprising:

generating a first body of data being sufficient to permit generation of a viewable video sequence of lesser quality than is represented by a source video sequence;

generating a second body of data being sufficient to enhance the quality of the viewable video sequence generated from the first body of data, the second body of data being generated by subtracting a reconstructed body of data from a subsection of the source video sequence, wherein the reconstructed body of data is selected from a group of at least two separate reconstructed bodies of data, and wherein the second body of data includes an enhancement layer that captures differences between the viewable video sequence and the source video sequence; and

predicting a subsection of the enhancement layer according to a prediction mode of a plurality of prediction modes, the plurality of prediction modes including prediction using the source video sequence and a combination of a previous enhancement frame and the first body of data.

² Claims 25 and 26 have been withdrawn.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

| | | |
|------|--------------------|---|
| Ueno | US 5,436,665 | Jul. 25, 1995 |
| Li | US 2002/0080878 A1 | Jun. 27, 2002 (filed Oct. 12, 2001) ³ |

Claims 1-24 stand rejected under 35 U.S.C. § 103(a) as being obvious over Ueno and Li.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Brief and the Answer for their respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments that Appellants did not make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).⁴

ISSUE

The issue is whether Appellants have shown that the Examiner erred in rejecting the claims under 35 U.S.C. § 103(a) as being obvious over the disclosures of Ueno and Li.

³ Li claims priority under 35 U.S.C. § 119(e) to provisional patent application no. 60/239,676, filed Oct. 12, 2000.

⁴ Except as will be noted in this opinion, Appellants have not presented any substantive arguments directed separately to the patentability of the dependent claims. In the absence of a separate argument with respect to those claims, they stand or fall with the representative independent claim. *See* 37 C.F.R. § 41.37(c)(1)(vii).

PRINCIPLES OF LAW

All timely filed evidence and properly presented arguments are considered by the Board in resolving an obviousness issue on appeal. *See In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

In the examination of a patent application, the Examiner bears the initial burden of showing a *prima facie* case of unpatentability. *Id.* at 1472. When that burden is met, the burden then shifts to the Applicant to rebut. *Id.*; *see also In re Harris*, 409 F.3d 1339, 1343-44 (Fed. Cir. 2005) (finding rebuttal evidence unpersuasive). If the Applicant produces rebuttal evidence of adequate weight, the *prima facie* case of unpatentability is dissipated. *In re Piasecki*, 745 F.2d at 1472. Thereafter, patentability is determined in view of the entire record. *Id.* However, on appeal to the Board it is the Appellant's burden to establish that the Examiner did not sustain the necessary burden and to show that the Examiner erred. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [for obviousness] by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007). In *KSR*, the Supreme Court reaffirmed that "[t]he combination

of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 1739.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d at 988. "To facilitate review, this analysis should be made explicit." *KSR*, 127 S. Ct. at 1741. However, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.*

An obviousness rejection can be based on a reference that happens to anticipate the claimed subject matter. *See In re Meyer*, 599 F.2d 1026, 1031 (CCPA 1979). In sustaining a multiple reference rejection under 35 U.S.C. § 103(a), the Board may rely on one reference alone without designating it as a new ground of rejection. *In re Bush*, 296 F.2d 491, 496 (CCPA 1961); *In re Boyer*, 363 F.2d 455, 458 n.2 (CCPA 1966).

During examination of a patent application, a claim is given its broadest reasonable construction consistent with the specification. *In re Prater*, 415 F.2d 1393, 1404-05 (CCPA 1969). "[T]he words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1313.

ANALYSIS

Appellants contend that the Examiner erred in rejecting claims 1-24 as being obvious over Ueno and Li. Reviewing the record before us, we do not agree. In particular, we find that Appellants have not shown that the Examiner failed to make a prima facie showing of obviousness with respect to claims 1-24. Appellants failed to meet the burden of overcoming that prima facie showing.

Claims 1-5, 8-13, 16-21, and 24

Appellants have argued claims 1-5, 8-13, 16-21, and 24 together as a group. (Br. 6-11.) Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii), we select claim 1 as representative.

Appellants argue that Ueno and Li do not teach or suggest "the second body of data being generated by subtracting a reconstructed body of data from a subsection of the source video sequence," "wherein the second body of data includes an enhancement layer that captures differences between the viewable video sequence and the source video sequence," and "predicting a subsection of the enhancement layer according to a prediction mode of a plurality of prediction modes, the plurality of prediction modes including prediction using the source video sequence and a combination of a previous enhancement frame and the first body of data," as claimed. (Br. 5-11.)

In particular, Appellants argue that "the prediction signal generated by Ueno is never stored, and therefore, cannot be used in combination with the base layer to predict an enhancement layer" and "[i]n addition, Ueno is devoid of any teachings regarding a base layer and a combination of the base layer with one or more enhancement layers to provide fine granularity

scaling or FGS." (Br. 5; *see also* Br. 8-11.) Appellants also argue that "the high resolution signal [of Ueno] referred to by the Examiner does not capture differences between the viewable video sequence and the source video sequence" (Br. 8; *see also* Br. 7) and "the prediction signal [of Ueno] is not based on differences between a reconstructed signal and the input picture signal, but is in fact formed by selecting a prediction candidate that yields the smallest difference when subtracted from the input picture signal to provide the prediction error" (Br. 11). Appellants further argue that there is no motivation to combine the teachings of Ueno and Li and that the Examiner used improper hindsight. (Br. 9-10.) We do not agree.

Initially, as noted by the Examiner (Ans. 7), we observe that claim 1 does not recite storing a signal, does not recite a base layer, and does not recite providing fine granularity scaling (FGS), and thus the Appellants' arguments regarding these features are not commensurate with the scope of the claim.

The Examiner correctly found (Ans. 9) that:

The high resolution picture at the output from adder 24 of Ueno, which represents the combination of the prediction signal output from predictor 104 and IDCT signal from inverse DCT 23, is being stored in frame memory 27 as the previous high resolution picture. The predictor 104 of Ueno therefore uses the previous high resolution picture stored in frame memory 27 as part of the motion estimation predictions, as described at column 8, lines 11-27, and column 8, line 59 to column 9, line 29 of Ueno.

(Ans. 9.) The Examiner reasoned that "the high resolution signal generated by Ueno is equivalent to one or more enhancement layers" (Ans. 9) or obvious in view of the enhancement layer teachings of Li (*id.*). The

Examiner also noted that, similar to the teachings of Ueno, "applicant's Figure 6 also provides a frame buffer 1 for storing a previous enhancement frames generated from the combination of the prediction signal 684 and IDCT signal, to be used for motion estimation prediction." (Ans. 9.) Therefore, we agree with the Examiner that Ueno fully discloses a prediction mode "including prediction using the source video sequence and a combination of a previous enhancement frame and the first body of data," as claimed.

The claim broadly recites that the second body of data *includes* an enhancement layer, and the enhancement layer *captures differences* between the viewable video sequence and the source video sequence. The Examiner found that Ueno "does not particularly teach" that the second body of data includes an enhancement layer, but the Examiner "considered [it] obvious that the high resolution signal generated by the second body of Ueno et al is equivalent to the one or more enhancement layers as claimed." (Ans. 5.) As explained *infra*, we agree with the Examiner that Ueno teaches a second body of data that *includes* an enhancement layer and also teaches that the enhancement layer *captures differences* between the viewable video sequence and the source video sequence. Nevertheless, the Examiner turned to Li for the disclosure of "a video apparatus and method for digital video enhancement" that "teaches the conventional enhancement layer generation[]." (Ans. 5-6.) The disclosure of Li further buttresses the Examiner's prima facie case of obviousness.

The Examiner correctly found that:

Ueno at column 8, line 59 to column 9, line 8 clearly teaches the calculation of differences between the (a) low resolution picture [i.e., viewable video sequence], high resolution picture,

and intra-frame prediction picture derived from the predictor and prediction mode decision unit 104, and (b) the input picture [i.e., source video sequence] to select a prediction mode. The low resolution picture for example is representative of the viewable video sequence and the input picture signal is representative of the source video sequence, and therefore the high resolution picture signal as derived from the second unit (i.e., elements 100, 101, 12, 17-24, 27, 104 of Ueno) is based on the difference between [or, in the terminology of the claim, "captures differences between"] the viewable video sequence and the source video sequence.

(Ans. 8.) Therefore, we agree with the Examiner that Ueno fully discloses a second body of data that includes "an enhancement layer that captures differences between the viewable video sequence and the source video sequence," as claimed.

The Examiner also correctly found "that the second body of Ueno as provided by elements 100, 101, 12, 17-24, 27, 104 of Figure 1 is nevertheless generated by subtracting [using subtracter 12] a reconstructed body of data (i.e., output of 104 of Figure 1) from a subsection of the source video sequence (i.e., output of 101 of Figure 1), as claimed." (Ans. 11.) Therefore, we agree with the Examiner that Ueno fully discloses a "second body of data being generated by subtracting a reconstructed body of data from a subsection of the source video sequence," as claimed.

We do not agree with Appellants' argument that there is no motivation to combine or that the Examiner used improper hindsight in combining the disclosures of Ueno and Li. As discussed *supra*, we agree with the Examiner (Ans. 5-6) that Ueno teaches or suggests the recited enhancement layer under the broadest reasonable interpretation of the claim consistent with the Specification. The Examiner turned to Li for the disclosure of

conventional enhancement layer generation, and thus Li further buttresses the Examiner's prima facie case of obviousness. Both Ueno and Li relate to video coding (Ueno, Abstract; Li, Abstract), and the Examiner articulated a rationale with rational underpinnings to combine the disclosures of Ueno and Li (Ans. 5-6, 10).

Accordingly, we conclude that Appellants have not shown that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 103(a). Claims 2-5, 8-13, 16-21, and 24 were argued as a group with claim 1, and fall together with claim 1.⁵

Claims 6, 14, and 22

Appellants have argued claims 6, 14, and 22 together as a group. (Br. 12-15.) Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii), we select claim 6 as representative.

Appellants argue that "the combination or modification of Ueno in view of Li would fail to teach or suggest the selection of the reconstructed body of data as indicated in syntax of a bit stream transmitted from an encoder, as recited by the claimed invention." (Br. 14.) Appellants further

⁵ We note that independent claim 9 appears to be directed to non-statutory subject matter. Claim 9 recites "a computer readable medium." The Specification teaches that "computer and/or machine readable media" may be "electrical, optical, acoustical and other forms of propagated signals (e.g., carrier waves, infrared signals, digital signals, etc.)." (Spec. 18:18 to 19:1.) Therefore, a computer readable medium appears to include a signal embodied in a carrier wave. But a signal embodied in a carrier wave is not statutory subject matter because it does not fall within any of the four categories of statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1357 (Fed. Cir. 2007).

argue that there is no motivation to combine the teachings of Ueno and Li and that the Examiner used improper hindsight. (Br. 13.) We do not agree.

We agree with the Examiner that, "regarding the selection of the reconstructed body as indicated in syntax of a bitstream transmitted from an encoder, such features are considered inherent in the MPEG system as disclosed within Ueno (see column 9, lines 38-53)." (Ans. 13.) In particular, Ueno, at column 9, lines 49-51, teaches that "[t]he prediction mode is subjected to variable-length coding as type information and multiplexed for each prediction unit (e.g., a macroblock for MPEG)." Therefore, the disclosure of Ueno renders obvious the subject matter claimed by claim 6.

Also, as discussed above with respect to claim 1, we do not agree that the Examiner used improper motivation or impermissible hindsight in combining Ueno and Li.

Accordingly, we conclude that Appellants have not shown that the Examiner erred in rejecting claim 6 under 35 U.S.C. § 103(a). Claims 14 and 22 were argued as a group with claim 6, and fall together with claim 6.

Claims 7, 15, and 23

Appellants have argued claims 7, 15, and 23 together as a group. (Br. 15-18.) Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii), we select claim 7 as representative.

Appellants argue that "the combination or modification of Ueno in view of Li would fail to teach or suggest a first set of motion vectors used to generate the first body of data and the first set of motion vectors are used to generate the second body of data, as recited by the claimed invention."

(Br. 17.) In particular, Appellants argue that "although low resolution prediction selection circuit [of Ueno] uses a motion vector from high resolution prediction selection circuit 131, this motion vector is completely distinct from the motion vector generated by high resolution prediction circuit 134." (Br. 17.) Appellants further argue that there is no motivation to combine the teachings of Ueno and Li and that the Examiner used improper hindsight. (Br. 15.) We do not agree.

As the Examiner correctly found, Ueno teaches "that a motion vector generated by prediction selector 132[,] corresponding to the optimal predictive signal[,] is sent to prediction mode decision unit 135, and prediction mode decision unit 135 will select a motion vector which minimizes the prediction error from among all the received motion vectors generated by circuits 131, 132, and 134." (Ans. 13-14; Ueno, col. 9, l. 57 to col. 10, l. 22, Fig. 5.) The Examiner recognized "that the motion vectors generated by circuits 131, 132, and 134 of Ueno are distinct from each other, as explained by the appellants, but it is nevertheless that [sic] the motion vector generated by prediction selector 132 represents the first set of motion vectors." (Ans. 14.) Because "the prediction mode decision unit 135 may select the motion vector (first set of motion vectors) generated by prediction selector 132 to generate the second body of data," (Ans. 14) the Examiner found that Ueno "reads on the claimed features of wherein the first set of motion vectors are used to generate the first body of data and the first set of motion vectors are used to generate the second body of data" (Ans. 14).

Under the broadest reasonable interpretation of the claim consistent with the Specification, we agree with the Examiner that Ueno renders obvious the claimed subject matter. Claim 7 broadly recites that the first set

of motion vectors are *used* to generate the first body of data and the second body of data. The plain language of claim 7 does not preclude intermediate steps in *using* the first set of motion vectors to generate either the first body of data or the second body of data. Thus, the first set of motion vectors generated by prediction selector 132 may be used in the intermediate step of being selected by prediction mode decision unit 135, and then the selected motion vector is used to generate the second body of data. Because the claim is broadly worded, we do not find error with the Examiner's claim interpretation or findings regarding Ueno.

Also, as discussed above with respect to claim 1, we do not agree that the Examiner used improper motivation or impermissible hindsight in combining Ueno and Li.

Accordingly, we conclude that Appellants have not shown that the Examiner erred in rejecting claim 7 under 35 U.S.C. § 103(a). Claims 15 and 23 were argued as a group with claim 7, and fall together with claim 7.

CONCLUSION OF LAW

We conclude that Appellants have not shown that the Examiner erred in rejecting claims 1-24 for obviousness under 35 U.S.C. § 103.

DECISION

The rejection of claims 1-24 for obviousness under 35 U.S.C. § 103 is affirmed.

Appeal 2008-1126
Application 09/758,647

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

KIS

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